

MOP-6803

TITLE: GUIDANCE FOR DEPLOYING AND USING ORS SUPPLEMENTAL EQUIPMENT

SCOPE: This document offers guidance for deploying Optical Remote Sensing (ORS) Facility supplemental equipment in the field. Supplemental equipment refers to equipment other than ORS instrumentation or scanners.

PURPOSE: To provide an overview of the activities involved in setting up and preparing supplemental equipment for data collection in the field.

1.0 PROCEDURE

1.1 Beginning of the Day

Before proceeding with the steps described below, it is assumed that the measurement configuration (i.e., placement of mirrors, scissorjack, and ORS instrument) has been determined. More information on selection of an appropriate survey configuration can be found in MOP-6821.

1. Start the generator located on the field trailer. Deploy a small generator in the vicinity of the meteorological instrumentation to power this equipment (if meteorological data is being collected).
2. Set up the R. M. Young or Climatronics meteorological station. See Sections 1.2 and 1.3, respectively, for more details on the setup and operation of the meteorological equipment.
3. Deploy the ORS instrumentation. More information on deployment of ORS instruments can be found in MOPs 6804 through 6809.
4. Deploy the ground-level mirrors. These may be mounted on a tripod, or placed near the surface of the measurement area on cinder blocks.
5. Deploy the scissorjack and any mirrors to be mounted on the structure (only if the VRPM configuration is being used).
6. Time synchronize all computers used in the field study. The computers should be set to Eastern Time, and the “automatically adjust clock for daylight savings changes” option should be turned off.
7. Collect survey measurements using the theodolite. See MOP-6822 for instructions on operating the theodolite.
8. Monitor gasoline levels in the generators, and refill, as necessary.

1.2 Setup and Operation of the R. M. Young Meteorological Station

1.2.1 Setup of the R. M. Young Meteorological Station

1. Deploy the datalogger adjacent to the location of the meteorological heads, and connect to the generator.
2. Complete the assembly by placing the vane atop the head and tightening the hexscrew.
3. Place the heads on tripods at proper heights. The ground level tripod should be extended to a height of approximately 2 meters. The second tripod should be attached to one of the side rails on the scissorjack platform using bungee cords, and should be deployed to a height of approximately 10 meters. Use extension connectors when deploying tripods on top of the scissorjack structure.
4. Connect the data cable from each meteorological head to their respective ports (the 2-meter ports and cables are marked red) on the datalogger.

1.2.2 Software Operation for the R. M. Young Meteorological Station

- 1) Open the PC208W program located on the IBM Thinkpad laptop computer.
- 2) Push “setup”, if needed (used only to change data loggers). Make sure the station reads “CR10X1.”
- 3) Hit “connect” and set the data logger clock to synchronize with any other computers used in the field campaign.
- 4) Send Program (HOG1) to the data logger.
- 5) Click on the numeric display for observations.
- 6) Click “collect” to download met data.

1.3 Setup and Operation of the Climatronics Meteorological Station

1.3.1 Setup of the Climatronics Meteorological Station

- 1) Attach the Climatronics heads to tripods by sliding the heads over the tripod mount and tightening the clamp screw. The ground level tripod should be extended to a height of approximately 2 meters. The second tripod should be attached to one of the side rails on the scissorjack platform using bungee cords, and should be deployed to a height of approximately 10 meters.
- 2) Connect the power cable from each head to the generator. Extension cords should be used to connect the power cable from the head deployed on the scissorjack.
- 3) Turn on each transmitter and ensure that a green light appears, indicating that data is being transmitted.

1.3.2 Software Operation for the Climatronics Meteorological Station

- 1) Connect the serial cables from the two data receivers to the appropriate port on the back of the data collection computer. Receiver “1111” collects data from the lower meteorological station, and the serial cable from this receiver should be connected to port “1111.” Receiver “2222” collects data from the upper meteorological station, and the serial cable from this receiver should be connected to port “2222.”
- 2) Turn on each receiver and ensure that a green light appears, indicating that data is being collected.
- 3) Open the *ARCADIS EnvRPM Version 1.0 (EnvRPM)* software being used for data collection and select the “wind data” tab.
- 4) Select the file location for the raw wind data files and the averaged wind data files.
- 5) Select the “on” button to collect data from monitors “1111” and “2222.” The most current wind data from each monitor should be displayed on the screen.

1.4 Setup of the Optical Anemometer

- 1) The Optical Ap parallel the FT-IR measuring path.
- 2) Receiver at scanner and IR source at far mirror.
- 3) Connect to computer. Once the program is running, data is being collected.
- 4) Select terminal to configure the path length. Type “S” in the send terminal and change accordingly.
- 5) Use the break out box to align the path. Signal displays voltage, should optimize around 2-3 on both channels. Use the scope to align. Make sure both ends are at approximately the same height and level.
- 6) Set Distance, Wind, Data Collection Time (60sec), Aperture (2, or 6 if both lens covers off)
- 7) Data is automatically saved in the data file C:\Sciti\data\file date. Back up daily.
- 8) Readings will differ from Tacmet sensors, b/c the optical doesn't account for direction. Must be perpendicular to winds to get the full disturbance (wind speed).

1.5 Set up of Sonic Anemometer

- 1)
- 2)
- 3)
- 4)
- 5)

1.6 End of the Day

- 1) Protect the mirrors by covering each one, or by leaning them face-down towards the ground.
- 2) Back-up data from the ORS instrument and meteorological stations.
- 3) Shut down the generators.